



# IBM System Storage N5300 Model A10 and A20 offer enterprise-class Fibre Channel, iSCSI, and NAS storage

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## At a glance

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The IBM System Storage N5300 is designed to provide:

- High data availability and system-level redundancy
- Support of concurrent block I/O and file serving over Ethernet and FC SAN infrastructures
- High throughput and fast response times
- Fibre Channel (FC) and Serial Advanced Technology Attachment (SATA) disk drives
- Support of enterprise customers requiring Network Attached Storage (NAS), with FC, or Internet Small Computer System Interface (iSCSI) connectivity
- 252 maximum disk drives supported, regardless of physical capacity, for both Model A10 and Model A20
- 4 GB (per node) of random access memory
- Up to five backend FC loops per node
- Enhanced reliability with active/active failover support on the Model 20
- Upgrade capability from Model A10 to Model A20

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## Overview

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The IBM System Storage™ N5300 storage controller includes the Model A10, a single-node base unit, and the Model A20, an active/active dual-node base unit. Both models are designed to provide fast data access, simultaneous multiprotocol support, expandability, upgradeability, and low maintenance requirements.

The two models of the N5300 feature:

- High data availability and system-level redundancy designed to address the needs of business-critical and mission-critical applications
- Single, integrated architecture designed to support concurrent block I/O and file serving over Ethernet and Fibre Channel SAN infrastructures
- High throughput and fast response times for database, e-mail, and technical applications
- Fibre Channel and Serial Advanced Technology Attachment (SATA) disk drive capabilities that are designed to allow deployment in multiple environments, including data compliant retention, NearStore, disk-to-disk backup scenarios, and high-performance, mission-critical I/O intensive operations

- Support of enterprise customers requiring unified access to Network Attached Storage (NAS), via Fibre Channel (FC), or Internet Small Computer System Interface (iSCSI)
- 252 as the maximum number of disk drives supported, regardless of physical disk capacity
- Attachment of both FC and SATA disk expansion units
- 4 GB (per node) of random access memory
- 512 MB (per node) of non-volatile random access memory
- Up to five backend FC loops per node
- Upgrade capability from Model A10 to Model A20

The N5300 storage controller supports both the EXN1000 SATA storage expansion unit, and the EXN2000 and EXN4000 FC storage expansion units. At least one storage expansion unit must be attached to the N5300. The maximum number of storage expansion units that may be attached to either the Model A10 or A20 is 18. The EXN1000 storage expansion unit can be configured with 5 to 14 disk drives of 250 GB or 500 GB physical capacity. The EXN2000 and EXN4000 storage expansion units can be configured with 5 to 14 disk drives of 144 GB or 300 GB physical storage capacity. EXN1000 SATA storage expansion units, and EXN2000 and EXN4000 FC storage expansion units, may not share the same FC loop.

These N series models are designed to provide fast data access, simultaneous multiprotocol support, expandability, upgradeability, and low maintenance requirements. Additional functions, such as snapshot, compliance, mirroring, and business continuance capability, are available through optional licensed functions.

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## Key prerequisites

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The IBM System Storage N5300 requires FC, NFS, CIFS, or iSCSI protocol function.

### Planned availability dates

- June 8, 2007: Except iSCSI Protocol and FCP Host Utilities — VMWare features
- June 15, 2007: For iSCSI Protocol and FCP Host Utilities — VMWare features
- August 10, 2007: Model and feature conversions (A10 to A20)

Availability of programs with an encryption algorithm in France is subject to French government approval.

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## Description

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The IBM System Storage N5300 storage controllers are designed to interoperate with products capable of data transmission in the industry-standard iSCSI, CIFS, FCP and NFS protocols. These include the IBM System p™, IBM System i™ (NFS only), IBM System x™, and IBM System z™ (NFS only) servers. The N5300 storage controllers consist of the Model A10 and Model A20, and associated software.

The Model A10 is designed to provide a single-node storage controller with iSCSI support, and NFS, CIFS, and FCP support via optional features. The N5300 Model A10 is a 3U storage controller that must be mounted in a standard 19-inch rack. The N5300 storage controller does not include storage in the base chassis. The base chassis includes:

- 3U, standard 19-inch rackmount enclosure
- Two 2.4 GHz 64-bit processors
- 4 GB random access ECC memory
- Four integrated Gigabit Ethernet RJ45 ports
- Four integrated 4-Gbps SFF Fibre Channel ports
- Three PCI-Express (PCIe) expansion slots
- One serial console port

- One integrated Remote LAN Management (RLM) port
- Redundant hot-swappable, auto-ranging power supplies and cooling fans

The maximum number of additional (optional) expansion adapters is three per node. A fourth expansion slot is used for the standard (included with the N5300) 512 MB NVRAM adapter card. The Model A10 supports a maximum of five dual-path FC loops, via the addition of three optional FC HBA for Disk Attachment (feature number 1014). The Model A10 can be upgraded to a maximum of 16 gigabit Ethernet ports via the addition of three optional quad-port copper NICs (feature number 1022 or 1023). The Model A10 may be upgraded to a Model A20. The upgrade from a Model A10 to a Model A20 is a disruptive upgrade.

The Model A20 is designed to provide identical function as the N5300 Model A10, but with the addition of a second processing node and the Clustered Failover (CFO) licensed function. The Model A20 also supports a maximum of 252 drives. The Model A20 consists of two storage controllers that are designed to provide failover and failback function, helping improve overall availability. For the Model A20, each node is a 3U rack-mountable storage controller. Therefore, the Model A20 occupies a total of 6U of rack space.

The Model A20 includes:

- 6U, standard 19-inch rackmount enclosure
- Four 2.4 GHz 64-bit processors
- 8 GB random access ECC memory
- Eight integrated Gigabit Ethernet RJ45 ports
- Eight integrated 4-Gbps SFF Fibre Channel ports
- Six PCIe expansion slots
- Two serial console ports
- Two integrated RLM ports
- Redundant hot-swappable, auto-ranging power supplies and cooling fans

For the Model A20, the maximum number of additional expansion adapters is six. The Model A20 can be upgraded to a maximum of ten multipath FC loops (20 4-Gbps FC ports) via the addition of six optional FC HBA for Disk Attachments (feature number 1014). The Model A20 can be upgraded to a maximum of 32 Gigabit Ethernet ports via the addition of six optional quad-port copper gigabit Ethernet NICs (feature number 1022 or 1023).

The physical proximity of the two processing nodes within a Model A20 (with respect to each other) is determined by which Infiniband cluster interconnect cables are ordered (feature numbers 1037, 1038, 1039, 1040 and 1041). Optical cables, #1040 and #1041, also require feature number 1042.

The N5300 storage controller Models A10 and A20 require at least one storage expansion unit, either an EXN1000, EXN2000, or EXN4000. The EXN1000 storage expansion unit provides a 3U rack-mountable disk enclosure containing five and up to a maximum of 14, serial advanced technology attachment (SATA) disk drives, either in 250 GB or 500 GB physical capacities. The EXN2000 and EXN4000 storage expansion units provide a 3U rack-mountable disk enclosure containing five and up to a maximum of 14, FC disk drives. The EXN2000 and EXN4000 support the following FC disk drive speeds and capacities:

- 15,000 revolutions per minute (15K RPM) of 144 GB and 300 GB capacities
- 10,000 revolutions per minute (10K RPM) of 144 GB and 300 GB capacities

Each EXNx000 storage expansion unit contains a maximum of 14 disk drives, all of a particular type (rotational speed and capacity). For the initial order of the IBM System Storage N5300, you may not include EXNx000 storage expansion units containing more than two types (rotational speed and capacity) of disk drives.

The maximum raw storage capacity of the N5300 system is determined by the number of disk drives supported. The N5300 Model A10 and Model A20 each support 252 hard drive spindles.

The following table describes the maximum supported total physical storage capacity for the N5300 Model A10 and Model A20:

Disk enclosure	Disk drive capacity	Maximum storage enclosures	Maximum disk drives	Maximum physical capacity
EXN1000	250 GB SATA disk drives	18	252	63.00 TB
EXN1000	500 GB SATA disk drives	18	252	126.00 TB
EXN2000	144 GB FC disk drives	18	252	36.28 TB
EXN2000	300 GB FC disk drives	18	252	75.60 TB
EXN4000	144 GB FC disk drives	18	252	36.28 TB
EXN4000	300 GB FC disk drives	18	252	75.60 TB

EXN1000 SATA storage expansion units, and EXN2000 and EXN4000 FC storage expansion units, must not share a Fibre Channel loop. A maximum of six storage expansion units are supported on a single Fibre Channel loop.

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## Reference information

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Refer to Hardware Announcement [ZG07-0393](#), dated May 22, 2007, IBM System Storage N series function authorization for IBM System Storage N5300 Models A10, A20, G10, and G20.

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